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10/716,584

11/18/2003

James A. Kweeder

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EXAMINER

SANDERS, KRIELLION ANTONETTE

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/716,584	Applicant(s) KWEEDER, JAMES A.	
	Examiner Kriellion A. Sanders	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 11-20 and 23-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) -8, 11-20 and 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-8, 11-20 and 2-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims are now directed to a composition comprising at least 15 weight percent of at least one lactam gelling agent. The specification does not present such a limitation. The specification provides guidelines for the amount of the lactam gelling agent at page 8, line 28 through page 9, line 17 wherein it is stated:

The at least one gelling agent and/or lactam gelling agent may be added in any suitable weight percentage with respect to the other composition constituents, as long as the addition of the gelling agent aids in the production of a pre-fiber gel composition. In a contemplated embodiment, the at least one gelling agent comprises less than 50 weight percent of the composition. In another contemplated embodiment, the at least one gelling agent comprises less than 40 weight percent of the composition. In yet another contemplated embodiment, the at least one gelling agent comprises less than 30 weight percent of the composition. In other contemplated embodiments, the at least one gelling agent

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comprises less than 20 weight percent of the composition. In yet other contemplated embodiments, the at least one gelling agent comprises less than 10 weight percent of the composition. Also, in some contemplated embodiments, the at least one gelling agent comprises less than 5 weight percent of the 0 composition. Issues to review as to whether caprolactam/nylon-6 gels would be useful is that they need a suitable viscosity and melt strength for processing. Unexpectedly suitable gels can be prepared over a wide range of concentrations from below 5 wt.% caprolactam to at least 50 wt.%. These gels proved remarkably easy to spin into fibers on conventional melt-spinning equipment and at drawing/take-up speeds comparable to commercial melt spinning. Gel polymers can be processed at lower temperatures than simple, neat melts. This feature can be exploited to process higher molecular weight nylon-6 without undue increases in operating temperatures.

It is clear from Applicant's specification that the lactam gelling agent need not be present in an amount of at least 15 percent by weight. Applicant presents one example at page 14 wherein the lactam is used at 15% wt. However, Applicant also presents examples wherein the lactam is used at 5 % by weight, 10 % by weight and 20, 30 and 40 % by weight, respectively. There is no place in the specification that recites the limitation that the lactam gelling agent must be used at an amount of at least 15 weight percent. This is a new matter rejection. Cancellation of the new matter is required.

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The rejections of record are repeated as they apply to the invention as supported by the original specification.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 102

I. Claims 1-10 and 13-24 and 29-30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **British Patent No. 2274109**.

The British Patent discloses compositions that contain Nylon 6 or Nylon 6, 6 and 1-5% of caprolactam. Fibers of the composition are formed by extrusion. See page 2, paragraph 4 and page 3, paragraph 1. Since the compositions are fibers, applicant's new claims 29 and 30 are met.

Response to Arguments

Applicant states that while the concept of gel compositions for forming fibers can be straightforward, successful implementation can be more difficult. Applicant argues that in the British patent, a molding composition that contains nylon and magnesium hydroxide has caprolactam added to it, to reduce the formation of surface defects. Applicant further argues that there is absolutely no teaching in the British reference that the caprolactam addition to the mixture of nylon and magnesium hydroxide results in the formation of a gel composition.

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Applicant arguments filed 9/30/2009 have been fully considered but they are not persuasive.

Applicant argues that there is no teaching in the above reference that the caprolactam addition to the mixture of nylon and magnesium hydroxide results in the formation of a gel composition. However, it is believed that because the components and processing equipment of the patented invention are essentially the same as those of Applicant's claims, the formation of a gel is inherent. Patentee's silence as to the physical state of the components used in the patented invention, is not clear indication that a physical state which is a gel is precluded. While Applicant emphasizes that the lactam of the present claims functions as gelling agent, it is concluded that the same lactam component utilized by Applicant is also utilized in the patented invention, particularly caprolactam. It is therefore believed that the present invention is inherently met by the reference.

II. Claims 1-11, 13-25 and 27 and 29-30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Walde us Patent No. 5047459**.

Walde discloses polyamide compositions comprising caprolactam at less than 5% by weight and the production step of extrusion. See col. 2, line 36 through col. 4, line 24.

Response to Arguments

Applicant's arguments in reference to Walde are similar to those presented against the British patent. Applicant states that while the concept of gel compositions for forming fibers can be straightforward, successful implementation can be more difficult. Applicant argues that in the Walde patent, thermoplastic materials and thermoplastic polycondensation products are

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described that contain flame retardants and lactams mixed with adducted melamines. The products are then melt processed and the solid formations are ground into powders. Applicant further argues that there is absolutely no teaching in Walde that the lactam addition to the thermoplastic materials or thermoplastic condensation products results in the formation of a gel composition. Since the compositions are fibers, applicant's new claims 29 and 30 are met.

Applicant's arguments filed 9/30/2009 been fully considered but they are not persuasive. Applicant argues that there is no teaching in the above references that the lactam addition to the thermoplastic materials or thermoplastic condensation products of Walde results in the formation of a gel composition.

However, it is believed that because the components and processing equipment of the patented invention are essentially the same as those of Applicant's claims, the formation of a gel is inherent. Patentees' silence as to the physical state of the components used in the patented invention, is not clear indication that a physical state which is a gel is precluded. While Applicant emphasizes that the lactam of the present claims functions as gelling agent, it is concluded that the same lactam component utilized by Applicant is also utilized in the patented invention. It is therefore believed that the present invention is inherently met by the references of record.

III. Claims 1-4, 11, 13, 14, 15, 16, 22-25, 27 and 29-30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Mason et al, US Patent No. 4745143**.

Mason et al discloses mixtures of caprolactam and hexamethylene adipamide. See col. 1, line 64 through col. 2, line 43, col. 3, lines 9-24 and col. 6, lines 64-67.

Response to Arguments

In response to the rejection, Applicant states that in Mason, plasticizers are added to polyamides to improve flexibility of the polyamide. Applicant argues that there is absolutely no teaching in Mason that the plasticizer addition to the polyamides results in the formation of a gel composition. Applicant further argues that, in Column 4, lines 48-52, it is stated that the plasticizer can leach out of the polyamide leaving voids behind that can be filled with the salt compositions that are later added. Applicant concludes that this description indicates that there cannot be a gel composition formed, because a gel composition would not leach the plasticizer and leave behind voids.

Once again, it is believed that because the components and processing equipment of the patented invention are essentially the same as those of Applicant's claims, the formation of a gel is inherent. Patentees' silence as to the physical state of the components used in the patented invention, is not clear indication that a physical state which is a gel is precluded. While Applicant emphasizes that the lactam of the present claims functions as gelling agent, it is concluded that the same lactam component utilized by Applicant is also utilized in the patented invention. It is therefore believed that the present invention is inherently met by the references of record. Applicant's statement that certain possible adverse effects, such as void formation, attributable to the plasticizer component of Mason is clear indication that a gel is not produced by Mason, is not convincing. This statement is considered to be based upon opinion.

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IV. Claims 1, 2, 4-14, 16-24, 27 and 29-30 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Shridharani et al, US Patent No. 5,223,196**.

A discussion of the pertinent teachings of Shridharani et al is provided in the 35 USC 103 rejection below.

Response to Arguments

In response to the rejection based upon Shridharani, Applicant states that a pigmented hexamethylene adipamide fiber is melt-spun from a melt blend of a polymer and a colored pigment. Applicant argues that the background section of the present application clearly points out that melt processing is undesirable and that the compositions contemplated in the current application do not need to be melt processed because of the formation of a gel composition. Applicant concludes that the disclosure of the present application makes it very clear that formation of the gel composition and gel processing is an alternative to melt blending and melt spinning. Applicant concludes that Shridharani provides the conventional method of processing these types of materials.

Applicant arguments filed 9/30/2009 have been fully considered but they are not persuasive. Applicant's specification at pages 11 and 12 indicates that melt blending and melt spinning procedures are not precluded from the present invention. Applicant indicates that thermal energy above the melting point may be applied to the materials and that spun-fiber products are contemplated. Patentees' silence as to the physical state of the combined components used in the patented invention is not clear indication that said physical state is not gel-like. While Applicant emphasizes that the lactam of the present claims functions as gelling agent,

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it is concluded that the same lactam component utilized by Applicant is also utilized in the patented invention. It is therefore believed that the gel composition of the present invention is inherently achieved by the reference.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-24, 27 -30 are rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent No. 2,274,109 as applied to claims 1-10 and 13-24 in view of Shridharani et al, US Patent No. 5,223,196.

The British patent equates nylon 6 and nylon 6, 6.

Shridharani et al discloses an improved process for melt-spinning a pigmented hexamethylene adipamide fiber. In one form of the invention two recurring amide-forming moieties are incorporated into the polyamide to be spun by polymerizing a blend of nylon 6,6-forming monomers, i.e. hexamethylene diamine and adipic acid or hexamethylene adipate salt, with 0.25 to 10 weight percent each, preferably 0.4 to 7.5 weight percent each, of two or more different difunctional polyamide-forming monomers to produce a random interpolyamide which is a terpolymer or a multi-polymer. For instance, Example 1 of the patent illustrates a terpolymer formed by the polymerization of nylon 6,6 forming monomers, caprolactam, and sodium 5-sulfoisophthalate. The processes of the invention can be used to produce nylon fibers having

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different degrees of orientation and therefore different tensile properties. Since the compositions are fibers, applicant's new claims 29 and 30 are met.

Example 1 of the patent is a random terpolymer of nylon 6, 6; 3 wt % polymerized units of caprolactam; and 2 wt % polymerized units of sodium 5-sulfoisophthalate. These percentages of components meet the weight percent requirements of Applicant claims. The fibers may be used to form carpets. Patentee explains that as the fiber's orientation increases, its tenacity is increased. Depending on the tenacity and other fiber properties needed for a given end-use application, the desired degree of orientation is determined. The total mechanical draw necessary to achieve that level of orientation, and hence the desired fiber properties, is then set. The freshly-spun fiber is drawn by tensioning it typically between feed rolls and faster-turning draw rolls, the ratio between the two (draw ratio) being the measure of the draw and the degree of orientation being achieved. If the tension on the fiber is too high as it is being drawn at any given draw ratio, breaks occur and the process is disrupted. It is therefore desirable to reduce the draw tension necessary to achieve a predetermined draw ratio. Fibers to be used in textile and carpet applications, for example, require comparatively low tensile strength, and the freshly-spun fibers are typically drawn from as little as about 150% for textile yarns to about 250-300% to provide tensile properties (about 3 grams/denier tenacity and about 65% elongation) suitable for carpet fibers. Patentee further explains that for industrial applications however, higher tenacity fibers are desirable and consequently more orientation is needed.

See col. 2, lines 1-25, col. 4, line 35 through col. 5, line 50. Also see col. 13, line 20 through col. 14, line 61.

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(10) Response to Arguments

Applicant argues that the disclosure of the present invention makes it very clear that formation of the gel composition and gel processing is an alternative to melt blending and melt spinning. Therefore, Shridharani provides the conventional method of processing these types of materials. Applicant's specification at pages 11 and 12 indicate that melt blending and melt spinning procedures are not precluded from the present invention. Applicant indicates that thermal energy above the melting point may be applied to the materials and that spun-fiber products are contemplated. Patentees' silence as to the physical state of the combined components used in the patented invention is not clear indication that said physical state is not gel-like. While Applicant emphasizes that the lactam of the present claims functions as gelling agent, it is concluded that the same lactam component utilized by Applicant is also utilized in the patented invention. It is therefor believed that the gel composition of the present invention is inherently achieved by the reference.

In response to Applicant's argument that the references fail to show certain features of Applicant invention, it is noted that the features upon which Applicant relies (i.e., that there is no recognized solvent system for gel-processing of polyamide-6) are not recited in the rejected claim(s), because the claims do not limit the amide-based polymer to polyamide-6. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kriellion A. Sanders whose telephone number is 571-272-1122.

The examiner can normally be reached on Monday through Thursday 8:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kriellion A. Sanders/

Primary Examiner, Art Unit 1796

Kriellion A. Sanders
Primary Examiner
Art Unit 1796

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